



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/595,739	05/08/2006	Marinus Johannes Adrianus Maria Van Helvoort	PHNL031331US	5555
38107 7590 08/24/2007 PHILIPS INTELLECTUAL PROPERTY & STANDARDS 595 MINER ROAD CLEVELAND, OH 44143			EXAMINER VARGAS, DIXOMARA	
			ART UNIT 2859	PAPER NUMBER
			MAIL DATE 08/24/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/595,739

Applicant(s)

VAN HELVOORT ET AL.

Examiner

Dixomara Vargas

Art Unit

2859

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 June 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2,4,5,7,8 and 10-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2,4,5,7,8,10-18 and 20-23 is/are rejected.
- 7) ☒ Claim(s) 19 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 May 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: The specification fails to disclose the receiving coils being permanently attached to the panel as required by claim 16.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claim 16 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification fails to disclose the receiving coils being permanently attached to the panel as required by claim 16. However, the specification discloses the coils to be removably fixed instead of permanently fixed (Page 10, second paragraph). Therefore, this teaching is mutually exclusive to the recitation in the claim.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 2, 4-5, 7-8 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Wu et al. (US 6,591,128 B1).

With respect to claim 7, Wu discloses a MRI system comprising (Figures 1, 8 and 9): a housing defining an examination space for receiving a body for examination (bore #12), the housing comprising at least one cover plate adjacent the examination space, the cover plate being used as a detachable part of the housing (detachable upper portion #42 of housing #100); a magnetic field generating system for generating a magnetic field in the examination space (magnets #10); an electromagnetic resonance receive system which comprises at least one dedicated receive coil (RF coil #40); wherein said at least one dedicated receive coil is fixedly attached to the cover plate of the housing (Columns 1 and 7, lines 36-39 and 43-52 respectively; the MR housing #100 having the RF coil set #106, #108, #114 and #116 mounted to/attached or fixed to the housing #100 as seen on Figures 4 and 5).

6. With respect to claim 2, Wu discloses a multiple fixed dedicated receive coils located at fixed positions relative to the examination space (Column 7, lines 43-52; the MR housing #100 having the RF coil set #106, #108, #114 and #116 mounted to/attached or fixed to the housing #100 during operation as seen on Figures 4 and 5).

Art Unit: 2859

7. With respect to claim 4, Wu discloses the dedicated receive coil is fixed to the interior of the cover plate (Column 7, lines 43-52, RF integrated inside the housing #100).
8. With respect to claim 5, Wu discloses the MRI system wherein the dedicated receive coil is integrated in the cover plate (Column 7, lines 43-52, RF coil is integrated to the top or cover of the system #40).
9. With respect to claim 8, Wu discloses the cover plate (Figure 4, cover #100) comprises two or more plate segments (Figure 10, segments #42'), coupled to each other by hinges (fasteners #104).
10. With respect to claim 11, Wu discloses a patient table being displaceable into and out of the examination space, wherein the electromagnetic resonance receive system further includes one or more additional receive coils mounted in or under the patient table and fixed to the patient table (Figure 1, coil #40 mounted to bed).
11. Claims 12-13 and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Carrozzi (US 5,986,531 A).

With respect to claim 12, Carrozzi discloses a magnetic resonance imaging system in which a generally cylindrical examination space is surrounded by a magnetic field generating system and an RF transmit system and further comprising (Figure 7): a housing which houses the magnetic field generating system and the RF transmit system (#6), the housing including a cylindrical cover plate which surrounds the examination space and separates the examination space from the magnetic field generating system and the RF transmit coils (#6 and #107); a patient table which selectively moves a patient into

Art Unit: 2859

and out of the examination space(Figure 8, #24); and, dedicated receive coils (#4) separate from the RF transmit system (#3) attached to the cylindrical cover plate (Column 6, lines 18-32; Figures 7 and 8, inner section of #6).

12. With respect to claim 13, Carrozzi discloses the dedicated receive coils are embedded in the cover plate, the cover plate being configured of an electrically insulating material (Column 6, lines 18-32).

13. With respect to claim 15, Carrozzi discloses the dedicated receive coils are removably affixed to an examination space facing surface of the cylindrical cover plate (Column 6, lines 18-32. Figure 7).

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

16. Claims 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wu et al. (US 6,591,128 B1) in view of Sodickson (US 6,717,406 B2).

With respect to claim 10, Wu discloses the electromagnetic resonance receive system further includes one or more separate antenna elements (coils #106 and #108) supported by the cover plate (section #42 of housing #100) in a fixed locations when the cover plate is attached to the housing (coils in section #42 during operation as seen on Figures 4 ad 5).

Furthermore, Wu discloses the claimed invention as stated above except for specifying that the MR system configured to perform SENSE imaging. However, Sodickson discloses the MR system configured to perform SENSE imaging (Abstract). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have an MR system configured to perform SENSE imaging as taught by Sodickson with Wu's MRI system for the purpose of using a known advance processing technique of parallel imaging to allow simultaneous acquisition of multiple lines of k-space data using multiple coils.

17. Claims 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Carrozzi (US 5,986,531 A) in view of Wu et al. (US 6,591,128 B1).

With respect to claim 14, Carrozzi discloses the claimed invention as stated above in paragraph 8 except for an additional dedicated receive coil mounted in the table to receive magnetic resonance signals from below the patient, the dedicated receive coils affixed to the cylindrical bore being disposed to the sides and above the patient to receive magnetic resonance signals from the sides and above the patient. However, Wu

Art Unit: 2859

discloses an additional dedicated receive coil mounted in the table to receive magnetic resonance signals from below the patient, the dedicated receive coils affixed to the cylindrical bore being disposed to the sides and above the patient to receive magnetic resonance signals from the sides and above the patient (Figure 5, coils #114 and #116). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have an additional dedicated receive coil mounted in the table to receive magnetic resonance signals from below the patient, the dedicated receive coils affixed to the cylindrical bore being disposed to the sides and above the patient to receive magnetic resonance signals from the sides and above the patient as taught by Wu with Carrozzi's MR system of Figures 7 and 8 for the purpose of receiving signals only from a small region by focusing the image data to said region with a local coils.

18. Claims 17-18 and 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carrozzi (US 5,986,531 A) in view of Su et al. (US 6,768,303 B1).

With respect to claim 17, Carrozzi discloses a magnetic resonance imaging system having a magnetic field generating system and RF transmit coils, the MRI system further comprising (Figures 7 and 8): a housing (#6) constructed of an electrically insulating material which surrounds the magnetic field generating system and the RF transmit coils and including at least one electrically insulating, fixedly mounted cover plate which separates the magnetic field generating system and the RF transmit coils from an examination space (Column 6, lines 9-32; Figure 7, transmitter #3 cover by inner section of #6); a table for moving a patient into and out of the examination space (figure 8, #24);

Art Unit: 2859

and, a plurality of dedicated receive coils (Column 6, lines 9-32; Figure 7, #4) affixed to the at least one insulating cover plate (Column 6, lines 9-32).

Furthermore, Carrozzi discloses the claimed invention as stated above except for specifying that the receive coils have a thickness of 1 mm or less. However, Su discloses the receive coils have a thickness of 1 mm or less (Column 3, lines 48-52). Therefore, it would have been obvious matter of design choice to one of ordinary skill in the art at the time the invention was made to have receive coils with a thickness of 1 mm or less as taught by Su with Carrozzi's magnetic resonance imaging system since such a modification would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art. In re Rose, 105 USPQ 237 (CCPA 1955).

19. With respect to claim 18, Carrozzi discloses the claimed invention as stated above except for specifying that the dedicated receive coils are configured of thin copper strips. However, Su discloses receive coils configured of thin copper strips (Column 3, lines 48-52). Therefore, it would have been obvious matter of design choice to one of ordinary skill in the art at the time the invention was made to have receive coils configured of thin copper strips since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

20. With respect to claim 20, Carrozzi discloses the dedicated receive coils are embedded in the at least one insulating cover plate (Column 6, lines 9-32). Furthermore, Carrozzi discloses the claimed invention as stated above in paragraph 16 except for specifying that the dedicated receive coils include copper strips. However, Su discloses

Art Unit: 2859

receive coils configured of thin copper strips (Column 3, lines 48-52). Therefore, it would have been obvious matter of design choice to one of ordinary skill in the art at the time the invention was made to have receive coils configured of thin copper strips since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

21. With respect to claim 21, Carrozzi discloses the dedicated receive coils are mounted on a substrate which is configured for detachable fixation to the cover plate (Column 5, lines 8-10).

22. With respect to claim 22, Carrozzi discloses the insulating cover plate is cylindrical (Column 6, lines 26-32).

23. Claims 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Carrozzi (US 5,986,531 A) and Su et al. (US 6,768,303 B1) in view of AAPA (Applicant's Admitted Prior Art).

With respect to claim 23, Carrozzi discloses the dedicated receive coils include a plurality of receive antenna elements and the MRI system includes a magnetic resonance imaging and reconstruction system (Column 2, lines 23-32) and wherein the receive antenna elements of the dedicated receive coils are fixedly positioned to the at least one cover plate in a known positions (Column 6, lines 9-32; Figure 7).

Furthermore, Carrozzi discloses the claimed invention as stated above in paragraph 16 except for a reconstruction system that requires the position of the receive

Art Unit: 2859

antenna elements to be accurately known, wherein the receive antenna elements of the dedicated receive coils are fixedly positioned to in accurately known positions. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made since applicant admitted prior art discloses to have a reconstruction system that requires the position of the receive antenna elements to be accurately known, wherein the receive antenna elements of the dedicated receive coils are fixedly positioned to in accurately known positions as taught by applicant's admitted prior art which is required when using the known method of SENSE parallel imaging (Page 2, fifth paragraph).

Allowable Subject Matter

24. Claims 16 and 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

25. Claim 16 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 1st paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

26. The following is a statement of reasons for the indication of allowable subject matter:

- a. With respect to claim 16 the claim has been found allowable over the prior art of record because the prior art of record fails to teach or fairly suggest a magnetic resonance imaging system in which a generally cylindrical examination space is surrounded by a magnetic field generating system and a RF transmit system and further comprising the dedicated receive coils are permanently affixed

Art Unit: 2859

to a surface of the cover plate which faces the RF transmit system in combination with the remaining limitations of the claim 12 above.

b. With respect to claim 19, the claim has been found allowable over the prior art of record because the prior art of record fails to teach or fairly suggest a magnetic resonance imaging system having a magnetic field generating system and RF transmit coils, the MRI system further comprising at least one insulating cover plate including a plurality of interchangeable, detachable cover plates, one of the cover plates having the dedicated receive coils attached thereto and a second of the cover plates being a blank cover plate without coils affixed to it in combination with the remaining limitations of the claim 17 above.

Response to Arguments

27. Applicant's arguments filed 06/14/07 have been fully considered but they are not persuasive.

28. Applicant argues that Wu fails to teach or fairly suggest attaching the local coil to the cover plate or bore.

29. The examiner disagrees with applicant's argument because Wu disclose the structure #40 in Figure 1 forming a small bore inside to image the head wherein #40 is composed of a housings #100 and #102 (as seen on Figure 4). The complete housing is composed of two sections, #102 and #104, wherein from said sections, the top part section #100 is the cover plate that contains attached to it the loop coils #106 and #108 as seen on Figure 5 (Column 7, lines 15-52).

Art Unit: 2859

30. Applicant argues the following: “Claim 2 emphasizes the differences still more by calling for the dedicated receive coils to be located at fixed positions. By distinction, the head coil 40 of Wu is movably positioned between a patient loading and unloading position and an imaging position. Due to operator error, the exact position of the head coil of Wu may be offset from the position in which the image reconstruction system believes it to be.

31. The examiner disagrees with applicant’s argument because Wu’s receiving coils are located at fixed positions during operation (Column 9, lines 4-12). If applicant means that said coils are permanently fixed, applicant is reminded that the claim language fails to suggest said limitation. Additionally, in response to applicant's argument that the references fail to show certain features of applicant’s invention, it is noted that the features upon which applicant relies (i.e., the exact position of the head coil known by the image reconstruction system) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

32. Applicant argues that Wu’s plate is not part of the housing for the MRI system.

33. In response to applicant's argument that the references fail to show certain features of applicant’s invention, it is noted that the features upon which applicant relies (i.e., the plate being part of the housing for the MRI system) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Art Unit: 2859

34. Applicant argues that Wu fails to teach or fairly suggest hinges.

35. The examiner disagrees with applicant's argument since Wu discloses the use of fasteners and list some of the possible fasteners including hinges-like type (Column 7, lines 15-42).

36. Applicant argues that Wu fails to teach or fairly suggest the system configured to perform SENSE imaging.

37. The examiner disagrees with applicant's argument in view that said limitation is under 35 U.S.C. 103(a) in view of Sodickson since said limitation has been added by the current amendment. Applicant's arguments fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references. Also, Applicant's arguments do not comply with 37 CFR 1.111(c) because they do not clearly point out the patentable novelty which he or she thinks the claims present in view of the state of the art disclosed by the references cited or the objections made. Further, they do not show how the amendments avoid such references or objections.

38. Applicant argues Wu fails to teach or fairly suggest the receive coils being mounted in or under, or fixed to the patient table.

39. The examiner disagrees with applicant's arguments since Wu discloses the receiving coils positioned in the patient table (Figure 1). The term "mounted" is interpreted as positioned on the top of the bed but not necessarily fastened with a specific means. If applicant means that the coils are mounted and fixed by fasteners, applicant is reminded that the claim language fails to suggest said limitation.

Art Unit: 2859

40. With respect to the arguments regarding the newly added claims 12-23, the arguments have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

41. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dixomara Vargas whose telephone number is (571) 272-2252. The examiner can normally be reached on Monday to Thursday from 8:00 am. to 4:30 pm..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego Gutierrez can be reached on (571) 272-2245. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2859

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Dixomara Vargas
Patent Examiner
Art Unit 2859



Diego Gutierrez
Supervisory Patent Examiner
Technology Center 2800